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EXAMINER

MARANDI, JAMES R

ART UNIT	PAPER NUMBER
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2421

NOTIFICATION DATE	DELIVERY MODE
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02/03/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/675,869	Applicant(s) CAGNO ET AL.	
	Examiner JAMES R. MARANDI	Art Unit 2421	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, and 9-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to applicant's amendment filed on 11/6/2009. Claims 1- 7, and 9- 30 are presently pending. Claim 8 has been canceled.

Response to Arguments

2. Applicant's arguments with respect to claims 1- 7, and 9- 30 have been considered but are moot in view of the new ground(s) of rejection.
 - 2.1. Applicant's amendment to specification (pages 2 and 3 of Remarks) corrects various typographical errors, as indicated in the office action of 8/6/2009, thereby overcoming the objection to specification.
 - 2.2. The newly submitted drawings overcome the objection raised in the office action of 8/6/2009.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4- 7, 9, 10, 12-18, and 20- 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over W.B. DeRolf et al., USPGPUB 2002/0104039 (hereinafter "DeRolf") in view of P. B. Gilliland et al., USPN 6,554,492 (hereinafter "Gilliland"), further in view of Philips hitag1 stick transponder (hereinafter "hitag"). Philips hitag1 reference was provided by applicant in IDS of 9/29/2003.

4.1. Regarding claim 1, DeRolf discloses a method to provide a signal via a

communication link (signaling on Fiber Channel communication links 12 in the SAN network of Fig. 1), **comprising the steps of:**

providing an information storage and retrieval system (SAN of Fig. 1) **comprising a controller** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶ [15], 10th line from the end of the paragraph-), **device adapter interconnected to said controller and**

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comprising a first communication link control card (for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk drives** (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop);

interconnecting said first communication link control card and said second communication link control card using said communication link (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d);

disposing a transponder on said communication link adjacent an end of said communication link (GBIC cards).

DeRolf is silent on the transponder being a **passive** transponder, **wherein said passive transponder includes a memory comprising information**;

reading said information from said memory by either said first communication link control card or by said second communication link control card; and
adjusting said signal based upon said information.

Gilliland discloses using GBIC transponders on communication **link** of Fiber Channel networks (Col. 1, lines 10-13), **wherein said transponder includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60);

reading said information from said memory by either said first communication link control card or by said second communication link control card (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**

adjusting said signal based upon said information (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-

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52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7).

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1st and 2nd paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag's

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disclosure in order to replace the pin connectors (20 of them) of a GBIC with a contactless, easy to connect, contactless interface.

4.1.1. Regarding claim 2, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link control card comprises a reading device** (GBIC has EEPROM memory as disclosed by Gilliland); **interconnecting said communication link to said communication link control card** (communication link connecting to the host system via GBIC), **such that said reading device** (in host system, per Gilliland Col. 1, lines 27-30) **is capable of reading said information from said memory** (EEPROM memory, per Gilliland Col. 1, lines 48- 51).

4.1.2. Regarding claim 4, the system of DeRolf, Gilliland, and hitag discloses (see Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive transponder comprises a throughput data field, further comprising the steps of:**

encoding said nominal throughput rate in said throughput data field (as shown in Table D.1, 6th row, Page 44 of the SFF-8053 specification);

reading said nominal throughput rate from said throughput data field (the fields are encoded on the EEPROM and read by the host reader);
determining if said nominal throughput rate is greater than or equal to said actual throughput rate (error detection process as described next);

operative if said nominal throughput rate is not greater than or equal to said actual throughput rate, generating an error message. As disclosed in section 5.1 the transponder (GBIC) is driven from the host board with signals TX_DAT. The output from transponder (GBIC) to the host board is designated as RX_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than an expected threshold, triggers RX_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX_FAULT and RX_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or network administrator that the system is not performing as desired.

- 4.1.3.** Regarding claim 5, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a cable type** (communication link is a physical layer with identified types, for example copper or fiber connecting to the transponder/GBIC. Cable types are identified and reflected in Table D.1 of SFF-8053 standard), **and wherein said passive transponder comprises a cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, rows 8-12), **further comprising the steps of:**
- encoding said cable type in said cable identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, rows 8-12);
 - reading said cable type from said cable identifier data field** (the data on EEPROM is read upon communication of transponder and the host reader),
 - providing a signal comprising said cable type** (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

- 4.1.4.** Regarding claim 6, the system of DeRolf, Gilliland, and hitag discloses **the step of detecting the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28- 30).

4.1.5. Regarding claim 7, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18), **further comprising the steps of:**

encoding said version number in said version identifier data field (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18);

reading said version number from said version identifier data field (the data on EEPROM is read upon communication of transponder and the host reader), **and**

4.1.6. providing a signal comprising said version number (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

4.2. Regarding claim 9, DeRolf discloses **an article of manufacture** (as shown in the SAN network of Fig. 1), **comprising a controller** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶

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[15], 10th line from the end of the paragraph-), **device adapter interconnected to said controller and comprising a first communication link control card** (for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk drives** (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop), **and a computer useable medium having computer readable program code disposed therein to provide a signal via a communication link, wherein said communication link includes a transponder** (devices 6 and 8 are connected to the FC-AL network, communications link, via control cards 24l and 24d, transponder GBIC) **disposed adjacent an end of said communication link** (GBIC cards).

DeRolf is silent on the transponder being a **passive** transponder, **comprising a memory comprising information, the computer readable program code comprising a series of computer readable program steps to effect;**
reading said information from said memory by either said first communication link control card or by said second communication link control card; and
adjusting said signal based upon said information.

Gilliland discloses using GBIC transponders on communication **link** of Fiber Channel networks (Col. 1, lines 10-13), **wherein said transponder includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60);
reading said information from said memory by either said first communication link control card or by said second communication link control card (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and**
adjusting said signal based upon said information (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-

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8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7).

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1st and 2nd paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features).

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Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag's disclosure in order to replace the pin connectors (20 of them) of a GBIC with a contactless, easy to connect, contactless interface.

4.2.1. Regarding claim 10, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link control card** (e.g. DeRolf's GBIC 24d) **comprises a reading device** (connection to host system reader), **where in said communication link is interconnected to said communication link control card** (communication link connecting to the host system via GBIC) **such that said reading device** (per Gilliland, Col. 1, lines 27-30) **is capable of reading said information from said one or more data fields** (per Gilliland EEPROM memory, Col. 1, lines 48- 51; Data fields as reflected in Table D.1 of SFF-8053).

4.2.2. Regarding claim 12, the system of DeRolf, Gilliland, and hitag discloses (Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive**

transponder comprises a throughput data field(as shown in Table D.1, 6th row, Page 44 of the SFF-8053 specification), **said computer readable program code further comprising a series of computer readable program steps to effect:**

reading said nominal throughput rate from said throughput data field (the fields are encoded on the EEPROM and read by the host reader);

determining if said nominal throughput rate is greater than or equal to said actual throughput rate (error detection process as described next);

operative if said nominal throughput rate is not greater than or equal to said actual throughput rate, generating an error message. As disclosed

in section 5.1 the transponder (GBIC) is driven from the host board with signals TX_DAT. The output from transponder (GBIC) to the host board is designated as RX_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than an expected threshold, triggers RX_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX_FAULT and RX_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or

network administrator that the system is not performing as desired.

4.2.3. Regarding claim 13, the system of DeRolf, Gilliland, and hitag discloses

wherein said communication link comprises a cable type

(communication link is a physical layer with identified types, for example copper or fiber connecting to the transponder/GBIC. Cable types are

identified and reflected in Table D.1 of SFF-8053 standard), **and wherein**

said passive transponder comprises a cable identifier data field (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, rows 8-12),

and wherein said cable type is encoded in said cable identifier data

field (stored in EEPROM as per Table D.1 of page 44 of SFF_8053

standard, rows 8-12), **said computer readable program code further**

comprising a series of computer readable program steps to effect:

reading said cable type from said cable identifier data field (the data on EEPROM is read upon communication of transponder and the host reader),

providing a signal comprising said cable type (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

4.2.4. Regarding claim 14, the system of DeRolf, Gilliland, and hitag discloses

steps to effect detecting the interconnection of said communication

link to said communication link control card (Gilliland: Col. 1, lines 28-30).

4.2.5. Regarding claim 15, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18), **and wherein said version number is encoded in said version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18), **said computer readable program code further comprising a series of computer readable program steps to effect:**

reading said version number from said version identifier data field (the data on EEPROM is read upon communication of transponder and the host reader), **and**

providing a signal comprising said version number (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

4.2.6. Regarding claim 16, the system of DeRolf, Gilliland, and hitag discloses **steps to effect detecting the interconnection of said communication link to said communication link control card** (Gilliland: Col. 1, lines 28-30).

4.3. Regarding claim 17, DeRolf discloses **a computer program product encoded in an information storage medium and usable with a programmable computer processor to provide a signal via a communication link** (signaling on Fiber Channel communication links 12 in the SAN network of Fig. 1), **wherein said computer program product is disposed in an information storage and retrieval system** (SAN of Fig. 1) **comprising a device adapter** (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers/ adapters- see ¶ [15], 10th line from the end of the paragraph-), **interconnected to said programmable computer processor and comprising a first communication link control card** (for example GBIC 24d connected to the interface 16b), **a first RAID** (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1) **comprising a first array of disk drives** (for example storage Device 6), **a second RAID rank comprising a second array of disk**

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drives (Storage device 8), **a communication loop** (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16]) **comprising a second communication link control card** (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop); **to provide a signal via a communication link** (interconnecting said first communication link control card and said second communication link control card using said communication link; devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d); **wherein said communication link includes a transponder** (GBIC) **disposed adjacent an end of said communication link** (GBIC cards).

DeRolf is silent on the transponder being a **passive** transponder, **wherein said passive transponder comprising a memory comprising information, comprising:**

Computer readable program code which causes said programmable computer processor to read said information from said memory by either said first communication link control card or by said second communication link control card; and...

to adjust said signal based upon said information.

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Gilliland discloses using GBIC transponders on communication link of Fiber Channel networks (Col. 1, lines 10-13), **wherein said transponder comprising a memory comprising information** (EEPROM, Col. 1, lines 48- 60), **comprising:**

Computer readable program code which causes said programmable computer processor to read said information from said memory by either said first communication link control card or by said second communication link control card (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51); **and ...**

to adjust said signal based upon said information (by reading the specifications, Col. 1, lines 27- 30, the host system identifies the type of GBIC and adjust signals accordingly to accommodate various facilities/links, Col. 1, lines 10- 14).

Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.

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Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7).

However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1st and 2nd paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag's disclosure in order to replace the pin connectors (20 of them) of a GBIC with a contactless, easy to connect, contactless interface.

4.3.1. Regarding claim 18, the system of DeRolf, Gilliland, and hitag discloses **wherein said first communication link card** (communication link connecting to the host system via GBIC) **comprising a reading device** (in host system, Col. 1, lines 27-30) **such that said reading device is capable of reading said information from said memory** (EEPROM memory, Col. 1, lines 48- 51).

4.3.2. Regarding claim 20, the system of DeRolf, Gilliland, and hitag discloses (Section 5.1 of SFF-8053 specification, page 11) **wherein said signal comprises an actual throughput rate and wherein said communication link comprises a nominal throughput rate, and wherein said passive transponder comprises a throughput data field, and wherein said nominal throughput rate is encoded in said throughput data field** (as shown in Table D.1, 6th row, Page 44 of the SFF-8053 specification), **further comprising:**

computer readable program code which causes said programmable computer processor to read said nominal throughput rate from said throughput data field (the fields are encoded on the EEPROM and read by the host reader);

computer readable program code which causes said programmable computer processor to determine if said nominal throughput rate is greater than or equal to said actual throughput rate (error detection process as described next);

computer readable program code which, if said nominal throughput rate is not greater than or equal to said actual throughput rate, causes said programmable computer processor to generate an error message. As disclosed in section 5.1 the transponder (GBIC) is driven from the host board with signals TX_DAT. The output from transponder (GBIC) to the host board is designated as RX_DAT. Any loss of signal, where the signal is not able to achieve the specified Bit Error Rate (BER), therefore throughput lower than an expected threshold, triggers RX_LOS. Signal deterioration at receiver and transmitter are monitored and acted upon through TX_FAULT and RX_LOS. The system of Gilliland and hitag discloses that in such situation, the signals with high error rate will not be utilized. However, Gilliland and hitag is not explicit in issuing an error message (though error detection and management is further disclosed in sections E.3 and E.4 (page 54). Official notice is taken that it is well known in the art to issue an explicit error message upon encountering a fault, in order to indicate to the user and/or network administrator that the system is not performing as desired.

4.3.3. Regarding claim 21, the system of DeRolf, Gilliland, and hitag discloses

wherein said communication link comprises a cable type

(communication link is a physical layer with identified types, for example

copper or fiber connecting to the transponder/GBIC. Cable types are

identified and reflected in Table D.1 of SFF-8053 standard), **and wherein**

said passive transponder comprises a cable identifier data field (stored

in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, rows 8-12),

and wherein said cable type is encoded in said cable identifier data

field (stored in EEPROM as per Table D.1 of page 44 of SFF_8053

standard, rows 8-12), **further comprising:**

computer readable program code which causes said

programmable computer processor to read said cable type from said

cable identifier data field (the data on EEPROM is read upon

communication of transponder and the host reader),

computer readable program code which causes said

programmable computer processor to provide a signal comprising

said cable type (as described in claim 1, the signal characteristics are

adjusted according to the data reflected in the EEPROM).

4.3.4. Regarding claim 22, the system of DeRolf, Gilliland, and hitag discloses

computer readable program code which causes said programmable

computer processor to detect the interconnection of said communication link to said communication link control card (Gilliland: Col. 1, lines 28- 30).

4.3.5. Regarding claim 23, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a version number** (Table D.1 of page 44 of SFF_8053 standard, row 18), **and wherein said passive transponder comprises a version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18), **and wherein said version number is encoded in said version identifier data field** (stored in EEPROM as per Table D.1 of page 44 of SFF_8053 standard, row 18), **further comprising:**

computer readable program code which causes said programmable computer processor to read said version number from said version identifier data field (the data on EEPROM is read upon communication of transponder and the host reader), **and**

computer readable program code which causes said programmable computer processor to provide a signal comprising said version number (as described in claim 1, the signal characteristics are adjusted according to the data reflected in the EEPROM).

4.3.6. Regarding claim 24, the system of DeRolf, Gilliland, and hitag discloses

computer readable program code which causes said programmable

computer processor to detect the interconnection of said

communication link to said communication link control card (Gilliland:

Col. 1, lines 28- 30).

4.4. Regarding claim 25, DeRolf discloses **a data storage and retrieval system**

(SAN network of Fig. 1), **comprising:**

a controller (SAN networks comprise of storage devices, which in turn comprise disk drives and controllers- see ¶ [15], 10th line from the end of the paragraph-),

a device adapter interconnected to said controller and comprising a first communication link control card comprising a first reading device (for example GBIC 24d connected to the interface 16b),

a first RAID (storage device of SAN network of Fig. 1, as described in ¶¶ [4], and [15]) **rank** (RAID rank is an association of disk drives, each rank contains n+1 disk drives with data striped across n data disks. See Sahai's "Performance Aspects of RAID Architecture", page 323, last 8 lines before Section 4.1)

comprising a first array of disk drives (for example storage Device 6),

a second RAID rank comprising a second array of disk drives
(Storage device 8),

a communication loop (Fiber Channel Arbitrated Loop, FC-AL, comprising of devices 6, 4, 10, 8, and 2, as also explained in ¶¶ [4] and [16])
comprising a second communication link control card (24l of storage device 8) **wherein said communication loop interconnects said first RAID rank and said second RAID rank** (6 and 8 are connected via FC-AL loop);

a communication link (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d) **comprising a length and a transponder disposed adjacent an end of said communication link** (GBIC cards),

wherein said communication link interconnects said first communication link control card and said second communication link control card (devices 6 and 8 are connected to the FC-AL network via control cards 24l and 24d)

DeRolf is silent on the transponder being a **passive** transponder, **wherein said passive transponder includes a memory comprising information;**

Such that the information from said memory by be read by either said first communication link control card or by said second communication link control card.

Gilliland discloses using GBIC transponders on communication **link** of Fiber Channel networks (Col. 1, lines 10-13), **wherein said transponder includes a memory comprising information** (EEPROM, Col. 1, lines 48- 60);

Such that the information from said memory by be read by either said first communication link control card or by said second communication link control card (information is accessed/read from EEPROM, as per GBIC specification, Col. 1, lines 48- 51).

Gilliland disclosure incorporates GBIC SFF-8053, GBIC Rev. 5.5 September 27, 2000, copy of which was provided by the applicant in the IDS of 9/29/2003. SFF-8053 further details the information/ tables outlining detailed information about the type of facilities, length, vendor, bit rates, etc. (see Appendix D. pages 43-52). For example, table D.1, Base ID fields indicating link length, vendor, and bit rate max and min.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf with Gilliland's invention in order to provide for flexibility, reduce hardware, and facilitate interfacing multiple devices (as also recognized by Gilliland Col. 2, lines 35-46).

GBIC transponder of the system of DeRolf and Gilliland though powered by the host (not including its own power source, and having passive circuitry as per SFF-8053, page 8, section 4.2) is not a **passive** transponder as defined by applicant (powered by RF source, page 6 of disclosure, lines 5-7).

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However, hitag provides a **passive** transponder (powered by RF, page 2, col. 2, 1st and 2nd paragraphs), comprising an EEPROM memory (Page 2, Col. 1, General Description), where the reader and transponder are enabled to securely communicate and identify each other (Page 2, Col. 2, 3rd paragraph), in a contactless fashion (Page 2, Col.2, Features).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf and Gilliland with hitag's disclosure in order to replace the pin connectors (20 of them) of a GBIC with a contactless, easy to connect, contactless interface.

4.4.1. Regarding claim 26, the system of DeRolf, Gilliland, and hitag discloses:

wherein said communication link (e.g. DeRolf's FC-AL)
interconnects said first communication link control card (e.g. 24d of 6)
and said second communication link control card (e.g. 24l of 8), **such**
that either said first reading device or said second reading device can
read said information from said memory (information is accessed/read
from EEPROM, as per GBIC specification, per Gilliland Col. 1, lines 48- 51).

4.4.2. Regarding claim 27, the system of DeRolf, Gilliland, and hitag discloses

wherein said passive transponder comprises a length data field, and
wherein said length is encoded in said length data field (SFF 8253,

Table D.1, rows 8-12, show cable length data fields which are encoded in the EEPROM module of the transponder).

4.4.3. Regarding claim 28, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a fiber channel communication link** (GBIC provides connectivity for fiber channel per Gilliland Col. 1, lines 10-13), **and wherein said passive transponder comprises a cable-type data field** (per SFF 8253, Annex D, e.g. Table D.1), **and wherein said cable-type data field indicates that said communication link comprises a fiber channel communication link** (as shown in Table D.1 rows 8-12, and row 6).

4.4.4. Regarding claim 29, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link further comprises a nominal throughput rate** (Table D.1, row 6), **and wherein said passive transponder comprises a throughput data field, and wherein said nominal throughput rate is encoded in said throughput data field** (Table D.1, row 6 is encoded on the EEPROM memory module).

4.4.5. Regarding claim 30, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link further comprises a cable version number** (Table D.1, row 18), **and wherein said passive transponder comprises a version data field, and wherein said version number is encoded in said version data field**(Table D.1, row 18 is encoded on the EEPROM memory module).

5. Claims 3, 11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRolf, in view of Gilliland, in further view of hitag, further in view of D.R. Cecchi et al., USPN 6,466,626 (hereinafter "Cecchi").

5.1. Regarding claim 3, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12th rows in the table, as disclosed by Gilliland's Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader); **further comprising the steps of:**

encoding said length in said length data field (data fields as shown in Table D.1 are encoded in EEPROM);

reading said length from said length data field (as discussed for claim 1, the data is read from the EEPROM by the host reader);

adjusting the characteristics of said signal based upon said length (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly)..

The system of DeRolf, Gilliland, and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland ,and hitag with Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

5.2. Regarding claim 11, the system of DeRolf, Gilliland and hitag discloses **wherein said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12th rows in the table, as disclosed by Gilliland's

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Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader), **and wherein said length is encoded in said length data field** (data fields as shown in Table D.1 are encoded in EEPROM), **said computer readable program code further comprising a series of computer readable program steps to effect:**

reading said length from said length data field (as discussed for claim 1, the data is read from the EEPROM by the host reader);

adjusting the characteristics of said signal based upon said length (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly).

The system of DeRolf, Gilliland and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland, and hitag with

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Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

5.3. Regarding claim 19, the system of DeRolf, Gilliland, and hitag discloses **wherein said communication link comprises a length** (SFF-8053, Table D.1, link lengths supported, 8 through 12th rows in the table, as disclosed by Gilliland's Col. 1, lines 20-25), **and wherein said passive transponder comprises a length data field** (the data field as reflected in Table D.1 is stored in EEPROM and read from the memory by the host reader), **and wherein said length is encoded in said length data field** (data fields as shown in Table D.1 are encoded in EEPROM) **further comprising:**

computer readable program code which causes said programmable computer processor to read said length from said length data field (as discussed for claim 1, the data is read from the EEPROM by the host reader);

computer readable program code which causes said programmable computer processor to adjust the characteristics of said signal based upon said length (as different lengths require different signaling, as disclosed by Gilliland, Col. 1, lines 27-31 and 44- 47, the signal is adjusted accordingly).

The system of DeRolf, Gilliland, and hitag is not explicit in disclosing adjusting **pre-emphasis** of the signal.

However, Cecchi discloses adjusting **pre-emphasis** of the signal based on cable characteristics, such as length, in order to compensate and account for attenuation and signal degradation on a cable (see abstract, Col. 2, lines 43- 67).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the system of DeRolf, Gilliland, and hitag with Cecchi's invention, in order to adjust signal characteristics, through pre-emphasis, to account for signal attenuation due to cable length.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

6.1. M.T. Benhase et al., USPGPUB 2002/0156944 discloses a RAID network architecture (Fig. 1) illustrating sample connectivity of storage subsystems to various storage disks detailing presence of controller 30 and network adaptors 10 and 12. Benhase further discloses the definition of RAID rank and how logical volumes and storage devices are mapped (e.g. ¶ [30]).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES R. MARANDI whose telephone number is (571)270-1843. The examiner can normally be reached on 8:00 AM- 5:00 PM M-F, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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